

6. *Further Notes on South African Marine Fishes.*—By  
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(With Plates VI–VIII and 4 Text-figures.)

THE following notes are based on specimens added to the South African Museum collection in recent years. For several species a large number of new localities has been ascertained, thanks to several correspondents. These have not been included here, as the net result is to show that many of the so-called warmer water species extend much farther westwards than was hitherto thought to be the case. The occurrence of the Springer (*Elops saurus*) in False Bay is perhaps the most noteworthy record.

A list of papers published since 1927 is given, and some of the main changes in nomenclature, particularly in the names of the Flat-fishes, are incorporated.

It is a pleasure to refer to the work which Dr. J. L. B. Smith, of Rhodes University College, Grahamstown, is doing in this country. Dr. Smith is favourably situated for investigating the stretch of coast between the Cape and Natal, in particular the Knysna and Port Alfred areas, about whose marine fauna we know so little at present, and he is making excellent use of his opportunities.

The following papers, published since 1927, deal wholly or partly (changes in nomenclature, etc.) with South African marine fishes:—

1934. Barnard, K. H., *Ann. Mag. Nat. Hist.* (10), xiii, pp. 228–235, figs.  
1935. „ „ *Ann. S. Afr. Mus.*, xxx, pp. 645–658, text-figs. and pl. xxiii.  
1927. Chabanaud, P., *Bull. Inst. Océan. Monaco*, No. 500, pp. 1–15.  
1927. „ „ *Ann. Mag. Nat. Hist.* (9), xx, pp. 523–527.  
1928. „ „ *Bull. Soc. Zool. France*, liii, pp. 272–279.  
1929. „ „ *Ann. Inst. Océan. Paris*, n.s. vii, pp. 215–260, text-figs. and plates.  
1930. „ „ *Bull. Inst. Océan. Monaco*, No. 550, pp. 1–23.  
1934. „ „ *Bull. Soc. Zool. France*, lix, pp. 420–436.  
1929. Fowler, W. H., *Ann. Natal Mus.*, vi, pp. 245–264.

1931. Fowler, W. H., Proc. Ac. Nat. Sci. Philad., lxxxiii, pp. 245-249 (marine).
1931. „ Bull. U.S. Nat. Mus., No. 100, vol. 11.
1933. „ *Ibid.*, vol. 12.
1934. „ Proc. Ac. Nat. Sci. Philad., lxxxv, pp. 233-367, text-figs. (subfam. names, etc.) (Jan.).
1934. „ *Ibid.*, lxxxvi, pp. 405-514, text-figs. (Nov. 6).
1934. „ Ann. Natal Mus., vii, pp. 403-433.
1935. „ Proc. Ac. Nat. Sci. Philad., lxxxvii, pp. 361-408, text-figs.
1928. Fowler, W. H., and Bean, B. A., Bull. U.S. Nat. Mus., No. 100, vol. 7.
1929. „ „ *Ibid.*, vol. 8.
1930. „ „ *Ibid.*, vol. 10.
1929. Norman, J. R., Ann. Mag. Nat. Hist. (10), iv, pp. 153-168.
1930. „ „ “Discovery” Reports, ii, pp. 261-370, text-figs. and pl. ii.
1931. „ „ Ann. Mag. Nat. Hist. (10), viii, pp. 507-516.
1934. „ „ Monograph of Flat-fishes, vol. 1, Brit. Mus.
1935. „ „ Ann. S. Afr. Mus., xxxii, pp. 5-22, text-figs. and pl. ii (*Spondyliosoma*).
1935. „ „ Proc. Zool. Soc. Lond., pp. 99-135, 18 text-figs. (*Synodontidae*).
1929. Regan, C. T., and Trewavas, E., “Dana” Oceanogr. Rep., No. 5, pp. 12-30, text-figs. and plates.
1930. „ „ *Ibid.*, No. 6, pp. 1-143, text-figs. and plates.
1929. Schnakenbeck, W., Mitt. Zool. Mus. Hamburg, xlv (1931), pp. 23-46.
1931. Smith, J. L. B., Rec. Albany Mus., iv, pp. 145-160, text-figs. and pl. xvi.
1933. „ „ Tr. Roy. Soc. S. Afr., xxi, pp. 125-127, pl. ix (*Myctophum*).
1933. „ „ *Ibid.*, xxi, pp. 129-150, pls. x-xii and 1 text-fig. (*Hemirhamphidae*).
1934. „ „ *Ibid.*, xxii, pp. 83-87, pl. iv and 1 text-fig. (*Pteroplataea*).
1934. „ „ *Ibid.*, xxii, pp. 89-100, pls. v, vi and 1 text-fig.

1934. Smith, J. L. B., *Ibid.*, xxii, p. 321-336, pls. xvi-xxiii and 1 text-fig. (*Triglidae*) (Dec.).
1935. „ Ann. S. Afr. Mus., xxx, pp. 587-644, pls. xv-xxii and 17 text-figs. (*Mugilidae*).
1935. „ *Ibid.*, iv, pp. 358-364, pls. xl-xlii (*Aluteridae*).
1935. „ Rec. Albany Mus., iv, pp. 169-235, text-figs. and pls. xviii-xxiii.
1935. „ Tr. Roy. Soc. S. Afr., xxiii, pp. 265-276, pls. xiii-xvii (*Dichistiidae*).
1936. „ *Ibid.*, xxiii, pp. 303-310, 1 text-fig. and pls. xxi-xxiii (*Tripterodon*).
1936. „ *Ibid.*, xxiv, pp. 1-6, 2 text-figs. and pls. i, ii.
1936. „ *Ibid.*, xxiv, pp. 47-54, 2 text-figs. and pls. iii-v (*Gobioidei*).
1936. Svetovidov, A., Faune de l'Urss. Poissons, vi, 9, pp. 1-21, pls. i-iii, with resumé in English, pp. 22-24 (*Triglidae*).
1929. von Bonde, C., Fish. Mar. Biol. Surv., vii, Spec. Rep. 3, pp. 1-11, figs. (*Heterosomata*).
1933. „ J. Comp. Neur., lviii, pp. 377-417 (cranial nerves, etc. (*Pliotrema* and *Sphyrna*)).

## Fam. ISURIDAE.

*Cetorhinus maximus* (Gunner).

(Plates VI, VII and text-fig. 1.)

1925. Barnard, Ann. S. Afr. Mus., xxi, p. 34, pl. ii, figs. 1, 1a.

Two more specimens have been captured in South African waters. Like the first recorded specimen, which was caught in 1917 and mounted in the South African Museum, the second specimen was also a young individual. It measured 11 feet 6 inches, and was caught in Table Bay 23rd March 1930. It was blackish in colour, with small black spots on the sides; the lips were white, and there were white streaks below the snout and on the chin and throat.

The third specimen to be recorded from South African waters was netted by Mr. Trauter in Hout Bay (west coast of Cape Peninsula) on 20th January 1935. It was a male measuring 28 feet in length, and was towed into Table Bay and exhibited for a few days on the Cape Town pier.

The animal was then cut up and dumped in the sea, without advising

the Museum. The head was presented to the Museum, but the chance of securing one of the claspers was lost. This is much to be regretted, as White (1930, Bull. Amer. Mus. Nat. Hist., lxi, p. 158) says the

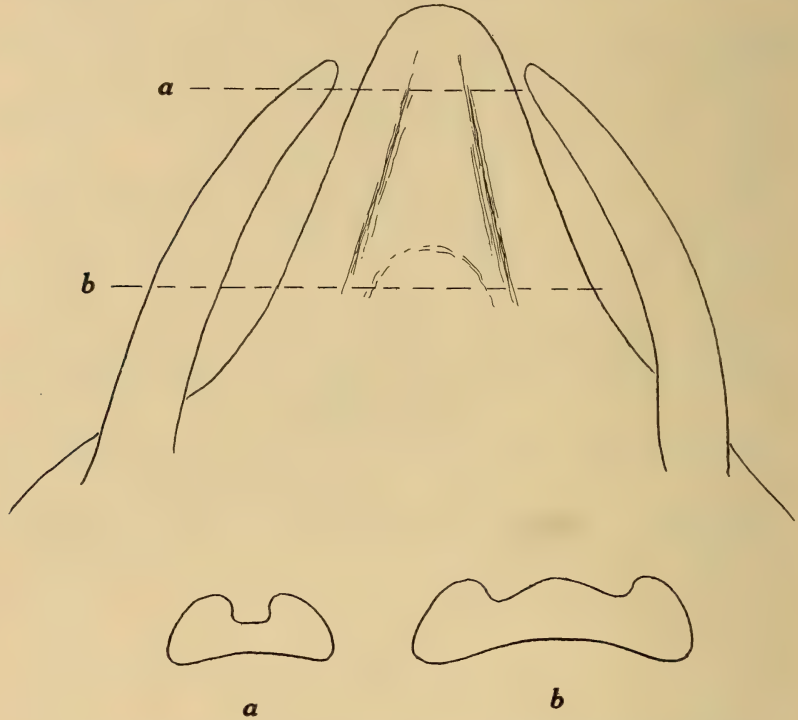


FIG. 1.—*Cetorhinus maximus* (Gunner). Dorsal view of rostral cartilages, with cross-sections of the ventral projection at *a* and *b*.

examination of the clasper of an adult might help to clear up the relationship between *Cetorhinus* and *Rhineodon*.

The following measurements were taken:—

Tail hanging in water—not measured; ventral distances separating gill-slits not visible, and outer margin 1st dorsal curled up and not measured.

Pit at root of caudal to end of base 2nd D. . . . .	33 inches
Base of 2nd D. . . . .	11 "
Front margin of 2nd D., 14 inches; hind margin, 15 inches; lower margin . . . . .	12 "
Front of 2nd D. to end of base 1st D. . . . .	75 "
Base of 1st D. . . . .	33 "
Front margin of 1st D., 47 inches; lower margin . . . . .	13 "



Depth of caudal peduncle . . . . .	11 inches
Base of C. to end of base of anal . . . . .	26 "
Base of A. . . . .	10 "
Front margin of A., 13 inches; upper margin, 9 inches; lower margin . . . . .	8 "
Front of base of A. to angle of base of ventrals . . . . .	36(+6) "
Base of V. . . . .	24 "
Front margin of V., 27 inches; outer margin of V. . . . .	30 "
Clasper . . . . .	36 "
V. to base of pectoral . . . . .	96 "
Upper margin of P., 57 inches; outer margin of P., 52 inches; lower margin of P. . . . .	10 "
Width of base of P. . . . .	17 "
1st D. to snout . . . . .	117 "
Snout to 1st gill-cleft . . . . .	54 "
1st gill-cleft to 5th cleft . . . . .	22 "
Snout to eye . . . . .	14 "
Eye diameter, vertical, $2\frac{3}{8}$ inches; horizontal . . . . .	$2\frac{5}{8}$ "
Eye to eye over curve of head . . . . .	20 "
Eye to angle of mouth . . . . .	20 "
Base of D. to 5th gill-cleft (lower margin) . . . . .	14 "
Nostril to eye . . . . .	5 "
5th gill-cleft, dorsal to ventral length . . . . .	47 "

Distances separating dorsal ends of gill-slits (over curve of back), 1st, 5 inches; 2nd, 9 inches; 3rd, 15 inches; 4th, 22 inches; 5th, 29 inches.

The symphysis of the upper jaw at the vertical from eye.

*Mucus Canals*.—Snout with large mucous pores, mostly transverse, a faint indication of longitudinal arrangement where the rostral and prenasal canals might be expected to lie. No other canals visible externally.

*Rostral Cartilages*.—There is a triangular ventral projection, with a groove on its upper surface; and slender, gently curved, dorsal processes (fig. 1).

*Teeth*.—In the upper jaw the bands of teeth are separated by a wide bare space. The teeth in the first two or three rows (nearest the middle line) are triangular with broad bases; the successive rows show a gradual transition to the more conical and terete form of tooth found throughout the rest of the dental band (Plates VI and VII).

#### Fam. ORECTOLOBIDAE.

*Stegostoma tigrinum* (Gmelin).—Algoa Bay (Port Elizabeth Museum); St. Francis Bay (C. L. Biden); Durban (H. W. Bell-Marley, presented to the South African Museum, 1935).

## Fam. HARRIOTTIDAE.

Whether or not *Rhinochimaera* be regarded as a synonym of *Harriotta*, the latter is the earlier genus, and the family name should be in accordance.

*Harriotta pinnata* Schnakenbeck 1929. Walfish Bay.

## Fam. ALEPOCEPHALIDAE.

*Bathytroctes rostratus* Brnrd. 1925, non Gnthr. = *Alepocephalus barnardi* Norman 1930, p. 270.

## Fam. GONORHYNCHIDAE.

Dr. Chabanaud informs me that an examination of type specimens in the Paris Museum has shown that the Cape species is correctly termed *gronovii* C. and V. It is an endemic species and is not conspecific with Australasian and Japanese species.

## Fam. STOMIATIDAE.

The correct date for *Astronesthes boulengeri* Gilch. is 1902, not 1904 (see Monograph, p. 1032, footnote).

Two specimens have been captured by trawlers belonging to Messrs. Irvin & Johnson, Cape Town, and presented to the South African Museum. Both were taken off Dassen Island, north of Table Bay, in 200–300 fathoms; one on 8th July 1925, the other 2nd July 1936.

For *Astronesthes capensis* G. and von B. see Regan and Trewavas, 1929, p. 30.

For *Borostomias richardsoni* see Regan and Trewavas, 1929, p. 25. The South African examples should be re-examined to see whether they belong to *Borostomias* or *Astronesthes*.

*Idiacanthus ferox* (Gnthr.) should read *I. fasciola* Peters, 1876. See Regan and Trewavas, 1930, p. 129.

The same authors reduce *Neostomias* to the rank of a subgenus of *Eustomias*, *loc. cit.*, p. 73. Throughout this paper the name of Gilchrist's species is spelt "filifer" instead of *filiferum*. *Gonostoma grandis* Coll. = *G. bathyphilum* (Vaill.); see Norman, 1930, p. 285.

The genus *Yarella* stands, but *Y. africana* G. and von B. becomes a synonym of *Y. corythaeola* (Alcock); see Norman, 1930, p. 289. *Mawrolicus pennanti* (Walb.) becomes *M. muelleri* (Gmelin); see Norman, 1930, p. 298.

Gen. *Haplostomias* R. and T.

1930. Regan and Trewavas, *loc. cit.*, p. 109.

Separated from *Melanostomias* by having the teeth simple, not bicuspid.

The specimen described below is a ♀, and the question may be raised whether simple and bicuspid teeth are merely characteristic of the ♀ and ♂ respectively. If so, the genus *Haplostomias* is unnecessary.

*Haplostomias tentaculatus* R. and T.

1930. Regan and Trewavas, *loc. cit.*, p. 109, pl. xi, fig. 1, and text-figs. 105a, 106a.

Depth  $5\frac{1}{2}$  length of head 7, in length of body. Eye subequal to snout, 6 in length of head. Teeth: about 18 in upper jaw, 1st and 3rd short, 2nd and 4th long, 4th longest, 5th-7th subequal, 8th onwards small and decreasing in size posteriorly; 12 in lower jaw, 2nd, 4th and 5th smallest, 3rd, 7th and 8th largest, last 4 increasing slightly in length posteriorly (the two sides in both jaws not quite symmetrical); 1 on each vomer, and 4-5 on each palatine, 2 pairs on tongue; none of the teeth bicuspid. Gill-rakers 8-9 small single or double spines on anterior arch. D 16. A 18. P 5. V 7. Branchiostegals 10 or 11 (as nearly as can be counted). Photophores, except the suborbital one, very indistinct. Barbel about twice length of head, ending in an elongate ovate bulb, with the black stem continued as a filament half the length of the bulb.

*Length.*—235 mm.

*Colour.*—Black, the bulb at end of barbel dull orange.

*Locality.*—Off Table Bay, 185 fathoms.

*Distribution.*—Caribbean Sea.

The specimen is a ♀ containing ripe or nearly ripe eggs, and was caught in a trawl about the middle of November 1928.

In spite of certain small differences (proportions of body, relative sizes of teeth) this specimen is referred to *tentaculatus*. These differences may be due to age, as the specimen is more than twice as large as the "Dana" specimens described by Regan and Trewavas.

Gen. *Echiostoma* Lowe.

1843. Lowe, Proc. Zool. Soc. Lond., p. 87.

1883. Gill, Proc. U.S. Nat. Mus., vi, p. 256 (*Hyperchoristus*).

1895. Goode and Bean, Ocean. Ichth., p. 108.

1930. Regan and Trewavas, *loc. cit.*, p. 116.

Body elongate, compressed, naked. Eye moderate. Mouth large, straight. Teeth on jaws typically large, depressible; teeth also on vomer, palatine and tongue. Barbel well developed. Pectoral small, the uppermost ray elongate, free. Ventral short, far behind middle of body. Dorsal and anal opposite, far back. No adipose fin. Caudal forked. Pseudobranchiae absent. A large suborbital photophore and two lateral rows. Gill-rakers minute.

The first record of this genus in South African waters.

*Echiostoma tanneri* (Gill).

1883. Gill, *loc. cit.*, p. 256 (*Hyperchoristus tanneri*).

1895. Goode and Bean, *loc. cit.*, p. 109, fig. 130 (*barbatum*, non Lowe).

1927. Parr, Bull. Bingham Ocean. Coll., iii, p. 53, fig. 31 (*barbatum*, non Lowe).

1930. Regan and Trewavas, *loc. cit.*, p. 117, fig. 113 (barbels).

Depth of body equal to length of head,  $6\frac{1}{2}$  (smaller)– $7\frac{1}{2}$  (larger specimen) in length of body. Eye  $1\frac{1}{2}$  in snout, 7 in length of head. Teeth: 12 plus a number of minute ones on hind part of maxilla, 2nd or 3rd, 4th and 5th largest; about 12 in lower jaw, 3rd, 6th and 7th largest (the two sides not quite symmetrical), the posterior teeth in a double or triple series; 1 on each vomer, about 7 on each palatine, 2 pairs and 2 small single teeth on tongue; most of the teeth minutely bicuspid. Gill-rakers: 7–9 pairs of minute spines on anterior arch. D 12. A 16. P 1 + 3, the free ray  $1\frac{3}{4}$ –2 times length of head, arising in front of (neither above nor below) the bases of the 3 short rays. V 8. Branchiostegals 10 or 11 (as nearly as can be counted), with a series of 10 photophores (one between each pair of branchiostegals), very distinct in the smaller specimen, but only the hinder ones distinct in the larger specimen. Cuneiform postocular photophore  $1\frac{1}{2}$  times the eye; 2–3 photophores on opercle; lower series of photophores beginning on isthmus: isthmus to pectoral 8 + 2, pectoral to ventral 26–27, ventral to beginning of anal 14–15 + 2 along anterior base of anal; lateral series opercle to ventral 24–25, ventral to beginning of anal 16, anal to caudal 12. Regan and Trewavas' figure (of *barbatum*) shows the ventral series continuous along base of anal to caudal; here the ventral series has 2 photophores along anterior base of anal and then stops, while the lateral series curves evenly down to posterior end of anal and continues along lower side of caudal peduncle. Barbel rather shorter than head, ending in two bulbous



swellings, with several short filaments, corresponding with that of a fish 223 mm. in length figured by Regan and Trewavas.

An anteorbital spine with 3-4 small denticles, a postorbital spine, 2 temporal spines, interorbital with 2 denticulate ridges beginning far apart at a level a little behind eye, and converging forwards, meeting in a single short spine at a level just in front of nostrils; a few other scattered denticles on upper part of head. All these spines more or less concealed by the loose skin, the interorbital crests very distinct in the larger specimen.

A large mucus pore on each side of interorbital, just within (medial to) the denticulate ridge; large suborbital and temporal pores.

*Length.*—200 mm. and 305 mm.

*Colour.*—Dark slaty-black, with small black dots on head and similar dots in vertical band-like series along the body to tail (*cf.* Günther's figure of *Opostomias* on pl. liii, fig. 4. of Challenger Rep., xxii, and Parr's figure 32 of *E. ctenobarbus*, and as described by Günther for *barbatum*); each of these black dots (photophores, as described by Günther) with a pale translucent centre; fins whitish, barbel greyish, postocular photophore pink, ventral and lateral series of photophores lilac or amethyst.

*Locality.*—Off Table Bay.

*Distribution.*—Gulf of Mexico, Caribbean Sea.

The smaller specimen was captured in the trawl at a depth of 185 fathoms in November 1928, together with the specimen of *Haplostomias* mentioned above, and the larger specimen in September 1935, depth probably also about 200 fathoms.

The South African Museum is indebted to Messrs. Irvin & Johnson for both these specimens, the larger of which is the largest specimen of this genus yet recorded.

#### Fam. ANGUILLIDAE.

##### *Anguilla mossambica* (Peters).

1925. Barnard, Ann. S. Afr. Mus., xxi, p. 175 and 1927; *ibid.*, p. 1018.

1935. *Id.*, Rep. S. Afr. Mus., 1934, p. 10.

An elver of this species was caught in the estuary of the Uvongo River, near Port Shepstone, Natal, by Mr. L. A. Day of the Inland Fisheries Survey. The specimen was handed to Mr. A. C. Harrison, from whom I received it, without further data as to time of year when caught.



It is 49 mm. in length, with 103 myomeres. It thus falls within the limits found for this species by the late Dr. J. Schmidt, viz. 100-105, as I am informed by Dr. V. Tåning (in litt. 9/2/35).

## Fam. MYRIDAE.

Gen. *Muraenichthys* Blkr.

1853. Bleeker, Verh. Batav. Gen., xxv, p. 71.

1916. Weber and de Beaufort, Fish. Indo-Austr. Archip., iii, p. 274.

Elongate cylindrical, vermiform. Scales absent. Vent before middle of length. Dorsal arising far behind gill-openings. Dorsal, anal and caudal confluent. Pectorals absent. Snout somewhat projecting. Nostrils on margin of upper lip, the anterior tubular, the posterior at base of a flap. Teeth on vomer and jaws. Tongue adnate. Lateral line present. Gill-openings small.

*Muraenichthys gymnotus* Blkr.

1857. Bleeker, Act. Soc. Sc. Indo-neerl., ii, p. 90.

1864. „ Atl. Ichthyol., iv, p. 33.

1871. Klunzinger, Verh. Zool. Bot. Ges. Wien., xxi, p. 608.

1916. Weber and de Beaufort, *loc. cit.*, p. 277.

1934. Barnard, Ann. Mag. Nat. Hist. (10), xiii, p. 230.

## Fam. MYCTOPHIDAE.

*Loweina*, a new subgeneric name to include *Myctophum rarum*. Fowler, Amer. Mus. Novitat., No. 162, p. 2, 1925.

*Lampanyctus warmingi* (Lütken) = *L. townsendi* Eig. and Eig. 1889.

*Lampanyctus argenteus* Gilch. = *L. hectoris* Gnthr. 1876.

## Fam. HEMIRHAMPHIDAE.

*Euleptorhamphus longirostris* (Cuv.).

1925. Barnard, Ann. S. Afr. Mus., xxi, p. 264 (references).

1928. Fowler, Mem. B. P. Bishop Mus., x., p. 74.

1936. „ Bull. Amer. Mus. Nat. Hist., lxx, p. 432 (quotes the South African record under name of *E. viridis* (van Hasselt)).

A specimen of this genus, the second specimen to be recorded from South African waters, was brought in a perfectly fresh condition to the S. Afr. Museum in June 1936 by a fisherman, who stated that it had been caught somewhere "in Table Bay."

Depth of body 20, length of head  $2\frac{1}{2}$ , length of lower jaw  $3\frac{1}{4}$ , in length of body. Eye  $3\frac{1}{2}$  in distance from tip of snout to hind margin of operculum, subequal to interorbital width and to snout,  $\frac{2}{3}$  post-orbital part of head. Longitudinal length of preorbital scarcely more than  $\frac{1}{2}$  eye-diameter.

D 23, arising slightly in advance of anal fin (above anterior margin of vent). A 22. V inserted at a distance in front of anal fin equal to the distance from anterior margin of nostril to hind margin of operculum; its length subequal to eye-diameter, and  $7\frac{1}{2}$  in length of uppermost pectoral ray. P 9, the lowermost ray very short, uppermost ray not quite twice the distance from tip of snout to hind margin of operculum. Lower caudal lobe longer than the upper lobe. Scales nearly all lost.

Bright silvery, the back duller, greenish-black, lower jaw bluish-black, fins pale, caudal with suffused hind margin.

*Length*.—355 mm. to end of mid-caudal rays, or 375 mm. to end of lower caudal lobe. The tip of lower jaw appears to be not quite complete.

*Remarks*.—The differences between this specimen and the Walfish Bay one described in 1925 are not to be taken as indicating specific differences, because the latter specimen is in a very poor condition, scarcely suitable for a critical study. On the contrary, it is a reasonable assumption that the two are conspecific. Jordan and Evermann (1905. Hawaiian Fishes) seem to be the only authors who have had adequate material on which to base a specific diagnosis.

Whether van Hasselt's name deserves priority I have no means of determining.

#### Fam. CORYPHAENOIDIDAE.

Whitley (1931, Austr. Zool., vi, p. 334) proposes *Fuyangia* in place of *Chalinura* G. and B., preoccupied.

#### Fam. BERYCIDAE.

##### *Beryx splendens* Lowe.

1833. Lowe, Proc. Zool. Soc. London, p. 142.

1843-60. *Id.*, Fishes of Madeira, p. 47, pl. viii.

1895. Goode and Bean, Ocean. Ichth., p. 176, fig. 197.

1924. Roule, Bull. Mus. Paris, No. 1, p. 73.

1934. Barnard, Ann. Mag. Nat. Hist. (10), xiii, p. 230.

Distinguished from the other South African species, *B. longipinnis*

Brnrd., by the more oblong body, fin and scale formulae, and by the absence of the filamentous rays of the dorsal and ventral fins.

Depth  $2\frac{1}{2}$ , length of head 3, in length of body. Eye  $2\frac{1}{2}$  in length of head, twice length of snout, which is slightly longer than inter-orbital width. No spine on nasal or lower jaw; preorbital spine without accessory spine. D IV 13. A IV 27. V I 11. Longest rays scarcely reaching to origin of anal. P 17,  $\frac{2}{3}$  length of head. Scales scabrous, with smooth median longitudinal groove; l.l. 77, l.tr.  $\frac{8}{20}$ .

Length.—270 mm.

Colour.—As in *longipinnis*.

Locality.—45 miles off Table Bay.

Distribution.—Madeira, West Indies, Japan.

A single specimen was caught in the trawl in December 1932, and presented to the South African Museum by Captain Taylor.

#### Fam. MELAMPHAIDAE.

See Norman, 1929. *Plectromus* is a synonym of *Melamphaes* Gnthr. 1864. *M. mizolepis* stands; *coronatus*, inadequately described by Gilchrist and von Bonde, is regarded as possibly the same as *unicornis* Gilb. 1905; and *macrophthalmus* Gilch. = *megalops* Lütken, 1877.

#### *Heterosomata*.

Norman (1931, p. 508) vindicates *Pseudorhombus natalensis* Gilch. as a species distinct from *arsius* (= *russelli*), and makes the following changes:—

*Laeops microphthalmus* von Bonde, transferred to *Arnoglossus*.

*Lambdopsetta kitharae* von Bonde, non Smith and Pope, redescribed as *Laeops natalensis* Norman.

*Barnardichthys* Chabanaud 1927, new genus to include *Solea fulvomarginata* Blgr.

*S. quadriocellata* von Bonde = *Quenselia ocellata* (Linn.); see Chabanaud (1930, p. 12).

*S. melanoptera* Gilch. and *S. capensis* Gilch. = *Synapturichthys kleini* Bonap. subsp. *variolosa* Kner. *S. alboguttata* Fowler 1929 seems to belong here also; see Chabanaud (1930, p. 10). *S. impar* = *Pegusa lascaris* (Risso).

*Synaptura barnardi* Smith 1931. Gt. Fish Point. Close to *marginata* Blgr.

*Achirus* = *Heteromycteris* Kaup.

*Coryphaesopia* Chab. 1930, new genus for *A. cornuta* Kaup. The South African form is described as a n. subsp. *barnardi* Chab. 1934.

*Pseudaesopia* Chab. 1934, new subgen. of *Zebrias* for *Aesopia regani* (Gilch.).

Revised nomenclature of South African Flat-fishes in the sequence adopted by Norman (Monogr. Flat-fishes, vol. i, 1934) (equivalents in Barnard, 1925, in brackets). Norman's vol. ii, containing the *Soleidae*, not yet published.

*Psettodidae.*

*Psettodes erumei* (Bl. Schn.).

*Bothidae.*

*Pseudorhombus arsius* (Hamilton). (*P. russellii*.)

„ *natalensis* Gilch. (*P. russellii*.)

*Citharoides marcrolepis* (Gilch.). (*Paracitharus m.*)

*Arnoglossus capensis* Blgr.

„ *dalglishi* (v. Bonde). (*Trichopsetta d.*)

„ *microphthalmus* (v. Bonde). (*Laeops m.*)

*Engyproson grandisquama* (Temm. and Schl.). (*Scaeps g.*)

„ *natalensis* Regan. (*Crossorhombus dimorphus* part, juv.)

*Crossorhombus valde-rostratus* (Alcock). (*C. dimorphus* part, adult.)

*Bothus pantherinus* (Rüppell).

„ *mancus* (Brouss.).

„ *ovalis* (Regan). (*Platophrys circularis*.)

*Chascanopsetta lugubris* (Alcock). (*C. gilchristi*.)

*Laeops nigromaculatus* v. Bonde.

„ *natalensis* Norman. (*Lambdopsetta kitharae* v. Bonde, non Smith and Pope.)

„ *pectoralis* (v. Bonde). (*Lambdopsetta p.*)

*Pleuronectidae.*

*Poecilopsetta natalensis* Norman. (*Limanda beani* v. Bonde, non Goode and Bean.)

*Marleyella bicolorata* (v. Bonde). (*Poecilopsetta b.*)

*Paralichthodes algoensis* Gilch.

*Samaris ornatus* v. Bonde.

„ *delagoensis* v. Bonde. (Norman: "perhaps identical with *cristatus*.")



## Soleidae.

- Dicologlossa cuneata* (Moreau). (*Solea senegalensis*, non Kaup.)  
*Barnardichthys fulvomarginata* (Gilch.). (*Solea f.*)  
*Quenselia ocellata* (Linn.) (*Solea quadriocellata*).  
*Synapturichthys kleini* Bonap. *variolosa* Kner. (*Solea melanoptera*  
 and *capensis*.)  
*Pegusa lascaris* (Risso). ? (*Solea impar*.)  
*Solea bleekeri* Blgr.  
 „ *turbynei* Gilch.  
*Heteromycteris capensis* (Kaup.) (*Achirus c.*)  
*Pardachirus marmoratus* (Lacep.).  
*Synaptura marginata* Blgr.  
 „ *barnardi* Smith. (Close to *marginatas*.)  
*Austroglossus pectoralis* (Kaup).  
 „ *microleps* (Blkr.).  
*Zebrias* (*Pseudoaesopia*) *regani* (Gilch.). (*Aesopia r.*)  
*Coryphaesopia cornuta* (Kaup), subsp. *barnardi* Chab. (*Aesopia c.*)  
*Paraplagusia marmorata* (Blkr.).  
*Cynoglossus lida* (Blkr.).  
 „ *durbanensis* Regan.  
 „ *gilchristi* Ogilby.  
 „ *hunteri* v. Bonde.  
*Arelia attenuata* (Gilch.).  
*Areliscus marleyi* (Regan).  
 „ *ecaudatus* (Gilch.).  
*Trulla capensis* Kaup.  
 „ *microphthalmus* (v. Bonde).  
*Symphurus variegatus* (Gilch.).  
 „ *strictus* Gilbert.  
 „ *ocellatus* v. Bonde.

## Fam. CARANGIDAE.

*Trachinotus baillonii* (Lacep.).

1934. Fowler, Proc. Ac. Nat. Sci. Philad., lxxxvi, p. 452.

Fowler accepts the synonymy of *russelli* and *oblongus* with Lacépède's species.

Fowler's remarks at the end of his description of this species are difficult to understand. I did not place Fowler's 1919 description of *Caesiomorus glaucus* Linn. under *Trachynotus glaucus* of Bloch, but under *glaucus* of Linnaeus, clearly stating "not *glaucus* Bloch,"



as reference to my monograph, p. 553, will show. *C. glaucus* Linn. was not later placed in a new genus *Campogramma* by Regan (1903, Ann. Mag. Nat. Hist. (7), xii, pp. 348 *sqq.*); in fact, neither *glaucus* Linn. nor *glaucus* Bloch were placed in this genus.

## Fam. HISTIOPTERIDAE.

*Quinquarius capensis* (C. and V.).

(Plate VIII.)

1927. Barnard, Ann. S. Afr. Mus., xxxi, p. 623.

1935. Fowler, Proc. Ac. Nat. Sci. Philad., lxxxvii, p. 393, fig. 26.

For the opportunity of including a record of this species in this paper I am indebted to Mr. R. Orpen, who forwarded a specimen picked up on the beach at Port Nolloth, Namaqualand, by Miss Irene Carstens in October 1935.

Since the original description of a single specimen by Cuvier and Valenciennes in 1829, only two other specimens have been recorded. One was taken by the Government Survey vessel s.s. *Pickle* off the coast of Natal on 28th December 1920. No description of this specimen was given, which is all the more unfortunate since the present specimen differs in a rather important feature from the original description. One cannot say whether Cuvier's specimen or the present one is abnormal. The other specimen, described by Fowler, also came from Natal.

The main features of the Port Nolloth specimen are as follows:—

Total length 63 mm. Depth  $1\frac{1}{2}$ , length of head  $2\frac{3}{4}$ , in length of body (caudal excl.). Width of the flat space between the ventral fins a little more than  $1\frac{1}{2}$  in the depth of body, subequal to the distance between the bases of ventral spines and the somewhat projecting knob on the throat (Günther, 1859, Cat. Fish. B.M., i, p. 212, seems to have reckoned the *narrowest* width between the ventrals, and the *longest* medio-ventral distance extending to the angle of the branchiostegals in C. and V.'s figure), and a little more than the distance between ventral spine and vent. Eye equal to snout, 3 in length of head. Depth of caudal peduncle (between ends of bases of dorsal and anal fins) slightly greater than its length. A band (4-5 rows) of fine conical teeth on both jaws, the outer ones slightly larger, and a few more granular ones in an oval patch on vomer; apparently none on palatines. Pseudobranchiae well developed. Gill-rakers 6 on upper, 16 on lower part of anterior arch, the longest ones about  $\frac{1}{3}$  eye-diameter. The bony scute (1st suborbital) has a

short acute forwardly directed spine on its anterior margin. The spine on the median occipital scute is directed backwards.

D XIII 12, 1st spine short,  $\frac{1}{2}$  eye-diameter and  $3\frac{1}{4}$  in 2nd spine, 4th and 5th longest, a trifle more than 2 eye-diameters, 13th spine a little shorter than the rays which are subequal to eye. A VI 7, 1st, 4th and 6th spines subequal, slightly less than eye, 5th shorter, 3rd a little longer, 2nd longest,  $1\frac{1}{5}$  eye-diameter. V I 5, the spine a little over 2 eye-diameters. P 17, 1st ray short, 4th and 5th longest, 17th very short. C 17 (+3), rounded-truncate.

Lat. line 46-47 (35-36 to where the line becomes horizontal on the caudal peduncle). Cheek-scales 5 vertical rows (across the deepest part of the patch).

Body silvery with blackish-brown markings almost exactly as in C. and V.'s figure, but the dark irregular bands on the flanks broader; a faint yellowish tinge on hinder part of body and on caudal peduncle; the flat ventral surface silvery-grey, with a white band between the bases of the ventrals and a pale area around the vent; opercle and cheek silvery; spinous dorsal and ventrals dark; soft dorsal, caudal and anal faintly yellowish; pectoral transparent.

The specimen thus follows the description and excellent figure given by the French authors, except as regards the extra spine in the dorsal and anal fins. This is an interesting feature in view of the number of spines found in allied species.

*Pentaceropsis*

*recurvirostris* . . . DX-XI 14. A III 11 (total) D 24-25. A 14.

*Pseudopentaceros*

*richardsoni* . . . (type) D XIV 10. A IV 8. D 24. A 12.  
(juv.) D XIV 9-10. A IV 8-9. D 23-24. A 12-13.

*Quinquarius*

*japonicus* . . . D XI 14. A V 9. D 25. A 14.  
*capensis* . . . (type) D XII 12. A V 7. D 24. A 12.  
(Port Nolloth) D XIII 12. A VI 7. D 25. A 13.

*Quadrarius*

*decacanthus* . . . D X 13. A IV 8. D 23. A 12.  
*hendecacanthus* . . . D XI 13-15. A IV 10-11. D 24-26. A 14-15.

So far as concerns the dorsal and anal fins all these species are closely allied, and Jordan's arrangement (1907) seems a little artificial. McCulloch has already (1915) made *Quadrarius* a synonym of *Quinquarius*, as the only difference seems to be in the number of anal spines; and suggested that, though possibly the latter may be synonymous with *Pseudopentaceros*, there are other differential characters.

The shape of the body and the relative length to breadth of the space between the throat and the ventral fins seem to be good characters. McCulloch's figure of the young of *P. richardsoni* (1923, Rec. Austral. Mus., xiv, p. 18, pl. iv, fig. 1) shows that the body shape does not alter much between the young and the adult. Such is also the case in *Q. hendecacanthus* McCull. (1915, "Endeavour," Sci. Res., iii, p. 144, pl. xxvi). But one feature does alter with age, viz. the gradual disappearance of the spines on the head. Consequently we can regard the type of *Q. capensis* and the present specimen as juveniles, and we may expect the adult, when captured, to have more or less the same body-shape, but to have no spines on the scutes on the head.

The 180 mm. specimen described by Fowler is interesting, as it has only 4 anal spines (as in *Pseudopentaceros* and *Quadrarius*) in association with 12 dorsal spines (as in the type of *Q. capensis*). There is also considerable resemblance between Fowler's figure and McCulloch's figure of the 70 mm. young *P. richardsoni* (*loc. cit.*), and I do not feel fully satisfied that Fowler's specimen should not rather be identified as *richardsoni*. Smith's figure of the 525 mm. type of the latter species may be possibly not quite accurate as to shape of body and head, if the figure, like the description, was taken from the dried skin. When more material is available it may be possible to decide the true relationship between *P. richardsoni* and *Q. capensis*.

In view of the excellence of the original figure there is no need to figure the present specimen. But as a matter of interest an illustration from an early work on fishes is here reproduced. This is the frontispiece to "The Naturalist's Library: Ichthyology, vol. i, by Sir William Jardine, Bart.," published in Edinburgh by W. H. Lizars & Stirling & Kenney in 1835, in which a very accurate copy of Cuvier and Valenciennes' figure is engraved against a vignette of Table Bay. The following paragraph appears on page ix of the publishers' advertisement:—

"We have introduced as back grounds, wherever they could be procured, the scenery which the fishes frequent. In many cases, the landscapes are representations of real views, which will be discovered upon examination of the plates; the figures upon which, . . . have been taken from the magnificent work upon this subject, by the Baron Cuvier and M. Valenciennes, whose representations are so perfect, as to leave little to be desired in the way of improvement."

In this instance the only "improvement" has been the addition of patches of pale pink on the pre- and post-orbital scutes, and of

pale yellow on the opercle, below the pectoral fin, and on the flank (Plate VIII).

Fam. LUTIANIDAE.

*Lutianus duodecimlineatus* (Val.).

- ?1802. Lacépède, Hist. Nat. Poiss., iii, pp. 430, 477, pl. xxii, fig. 2  
(*Labrus octovittatus*).
1830. Cuvier and Valenciennes, Hist. Nat. Poiss., vi, p. 529.
- 1874.\* Bleeker in Pollen and van Dam. Faune Madagasc., pt. 4,  
Poiss., p. 27, pl. ix, fig. 1 (coloured) (*octovittatus*, non  
Lacép.).
1927. Barnard, Ann. S. Afr. Mus., xxi, p. 653, p. 27, fig. 3 (after  
Sauvage).
1931. Fowler, Bull. U.S. Nat. Mus., No. 100, xi, p. 153.
1934. *Id.*, Proc. Ac. Nat. Sci. Philad., lxxxvi, p. 466, fig. 38.

Fowler (1934) makes the following statement: "The colour pattern as described by Barnard . . . is therefore incorrect as my figure and description show." This is a *non sequitur*. I have re-examined the specimens and can state that my description of the pattern is correct for the specimens in the South African Museum. Except for the absence of the common base of the 3rd and 4th streaks, Sauvage's figure agrees. As a matter of fact, Fowler's figure also agrees, except that in my specimens the streaks are no longer traceable on the head. It would perhaps have been clearer if after the word "behind" [the opercle] in my description the following words had been used: "behind the head" or "behind a line drawn more or less vertically from the upper part of opercle."

Bleeker's identification of this form as Lacépède's *octovittatus* is not accepted by Fowler (1931).

Gen. *Etelis* Cuv.

1828. Cuvier and Valenciennes, Hist. Nat. Poiss., ii, p. 127.
1931. Fowler, Bull. U.S. Nat. Mus., No. 100, vol. xi, p. 193.

Distinguished from *Pristipomoides* by the shortness of the hinder spines in the spinous dorsal fin, causing a concavity in the margin; the spinous and soft portions, however, are not separate.

\* The South African Museum copy has 1875 on the outer cover and 1878 on the title-page. The British Museum Library Catalogue gives 1874.



*Etelis carbunculus* Cuv.

1828. Cuvier, *loc. cit.*, p. 127, pl. xviii.

1905. Jordan and Evermann, Bull. U.S. Fish. Comm., xxiii, p. 242, pls. xviii and xxxviii (*Etelis evurus*).

1928. Fowler, Mem. B. P. Bishop Mus., x, p. 193, pl. xvii, fig. A.

1931. *Id.*, *loc. cit.*, p. 195.

Depth  $3\frac{3}{4}$ , length of head  $3\frac{1}{2}$ , in length of body. Eye  $4\frac{1}{2}$  in head,  $1\frac{1}{2}$  in snout. Snout subequal to interorbital, 3 in head. Least depth of preorbital half the (longitudinal) diameter of eye.

Cardiform bands of teeth in both jaws, with well-spaced small canines in outer row; teeth on vomer and palatines, but none on tongue. Gill-rakers, 14 on lower part of anterior arch.

D X 11. 1st spine very short,  $2\frac{1}{2}$  in eye, 6 in 2nd spine, 3rd spine slightly longer than 4th, nearly 2 in head, 10th spine  $1\frac{1}{2}$  in eye; last ray prolonged, half as long again as penultimate ray. A III 8, last ray not prolonged. Caudal forked, but lobes not prolonged.

Scales: l.l. 51; l.tr. 6 to base of 1st dorsal spine (including the uppermost narrow sheath-like scale), 13 to base of ventral fin, 16 to middle line of belly. Cheek scales 6-7. Axillary scale of ventral fin present, but more or less concealed under an ordinary body scale.

800 mm. As preserved, silvery, most of the scales on upper part of body with a rose or pale crimson centre.

*Locality*.—Off Bashee River mouth. Caught by Mr. H. Smedsvik, of *Seafoods Successors*, Durban; and forwarded for identification by E. C. Chubb, Esq., Curator, Durban Museum, August 1936.

*Remarks*.—I have little doubt that this specimen should be identified with Cuvier's species, which is known from Mauritius, Réunion, Seychelles, Japan, and the Hawaiian Islands (and the West Indies). It does not entirely agree with the published descriptions. It is a male.

*Aetiasis* n. g.

Teeth on jaws conical, the front ones moderately large, the hinder ones small, an irregular row of small teeth internal to the outer row in front; small conical teeth on vomer and palatines; tongue smooth. An inconspicuous flat spine on opercle. Preopercle entire. Top of head, cheeks, and maxilla scaly. Caudal fin, but not dorsal and anal, scaly. Dorsal not deeply notched, spines 12. Anal rays 8. Dorsal and anal rays not produced. Pectoral subequal to head, scarcely falcate, scaly at base. No transverse groove between interorbital and occipital.



The fish for which this genus is proposed does not seem to fit in with any of the other genera of the family, though the complaint (*ἀπταισισ*) is justified that there is already a large amount of synonymy among the Indo-Pacific species, which await a full and authoritative revision.

*Aetiasis cantharoides* n. sp.

(Text-fig. 2.)

Depth about 3, length of head  $3\frac{3}{4}$ , in length (excl. caudal). Eye (long diameter) subequal to snout, 4 in length of head. Interorbital

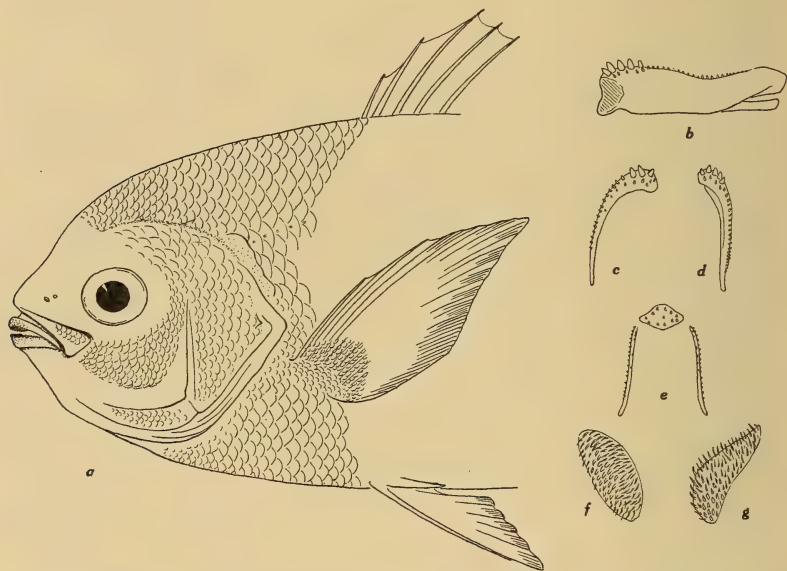


FIG. 2.—*Aetiasis cantharoides* n. g., n. sp. *a*, Head; *b*, inner view of right dentary bone, cleaned to show teeth; *c*, ventral view of right premaxilla, cleaned; *d*, dorsal view of right dentary, cleaned; *e*, vomer and palatines; *f*, left upper pharyngeal, anterior end above; *g*, left lower pharyngeal, anterior end below (inner margin (median line) to left in both *f* and *g*).

width slightly more than  $1\frac{1}{2}$  times eye. Preorbital (opposite end of maxilla)  $\frac{1}{4}$  the long diameter of eye. Greatest depth of caudal peduncle (between ends of bases of dorsal and anal fins) subequal to length along its dorsal profile,  $1\frac{1}{4}$  times length of its ventral profile, least depth (at base of caudal) twice in greatest depth. A very small notch near the angle of preopercle, which is not denticulate. One short flat spine (not prominent) on opercle.

D XII 7 (possibly XIII 6, the posterior spines and anterior rays

being broken), spines slender, 1st  $\frac{3}{4}$  the long diameter of eye, 2nd about twice the 1st, 3rd longest, twice the long diameter of eye, following spines successively shorter, ultimate ray more slender and shorter than the penultimate ray, which is the longest ray and equal to the 4th spine. Rays not scaly. Apparently not notched between spinous and soft portions.

A III 8, spines stouter than the dorsal spines, 1st  $1\frac{1}{2}$  times in the 2nd, which is subequal to the long diameter of eye, and  $1\frac{3}{4}$  times in 3rd, ultimate and penultimate rays subequal, not elongate,  $1\frac{1}{4}$  times the eye diameter. Rays not scaly.

P 17, subequal to length of head, scaly at base, the uppermost 2 rays simple.

V I 5, with axillary and medio-ventral enlarged scales.

Caudal forked, scaly.

Maxilla without supplementary bone, exposed, extending to below anterior margin of eye, its posterior width subequal to diameter of pupil, with 2 series of scales. Lips and gums villous, the teeth in consequence being concealed, even the larger canines not being clearly visible.

Teeth small, conical, in a single row laterally on lower and upper jaws, becoming a double row in front, and with an outer series of enlarged conical teeth in front, 6 in upper jaw, 10 in lower jaw. A few small conical teeth in an oval patch on vomer, and a single row (in some places anteriorly double) on each palatine. Tongue smooth. Upper and lower pharyngeals with conical teeth in centre, passing into slender curved spiniform teeth around margins.

Branchiostegals 6, the anterior 4 slender, the posterior 2 stout.

Gill-rakers 19-20 on lower part, 6 on upper part, of anterior arch. Pseudobranchiae present.

Scales minutely ctenoid. L.l. 72; l.tr. 9 (1st dorsal spine to l.l.), 18 (l.l. to spine of ventral fin). Seven series on cheek. About 24 predorsal scales beginning at about vertical from anterior third of eye. Opercle and subopercle scaly.

Length.—400 mm.

Colour (as preserved).—Brownish, silvery on cheeks, opercles, and belly.

Locality.—Natal coast (one specimen secured by the kindness of Mr. C. L. Biden).

This fish bears a strong resemblance to a species of *Pachymetopon* (*olim Cantharus*), e.g. *P. aeneum*. In fact, it was included in the material sent to Mr. Norman for his revision of the Spondyliosome

and allied fishes (Ann. S. Afr. Mus., xxxii, p. 5, 1935), and I am indebted to Mr. Norman for suggestions as to its true position.

Fam. SCORPIDIDAE.

*Neoscorpis* Smith 1931, new genus for *Scorpis lithophilus*.

Fam. SPARIDAE.

*Dentex macrophthalmus* (Bl.), Schnakenbeck 1929, p. 25, Walfish Bay.

Fowler (1925, Amer. Mus. Novit., No. 162, p. 4) places this species in a new subgenus *Opsodentex*.

In the same paper (p. 4) Fowler proposes a new subgenus *Eusalpa* for *Box salpa*, but in 1934 (Proc. Ac. Sci. Philad., lxxxvi, p. 472) records this species as *Sarpa sarpa* Linn.

Revision of *Spondylisoma* and *Pachymetopon*: see Norman (1935, Ann. S. Afr. Mus., xxxii, pp. 5 *sqq.*).

Fam. GOBIIDAE.

*Gobius delagoae* n. sp.

(Text-fig. 3.)

Body elongate. Depth  $6\frac{2}{3}$ , length of head  $4\frac{1}{2}$ , in length of body. Eye slightly greater than snout,  $3\frac{1}{2}$  in length of head. Interorbital

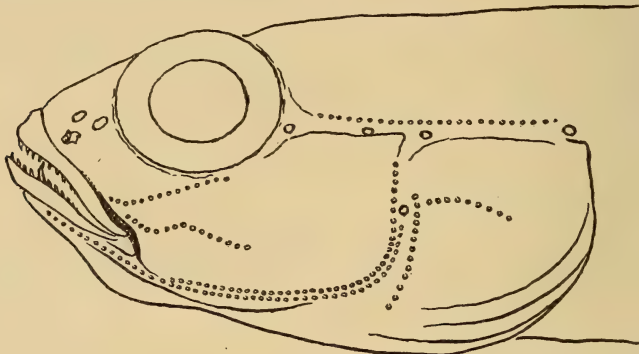


FIG. 3.—*Gobius delagoae* n. sp.

very narrow, 4 in vertical diameter of eye. Maxilla extending to below anterior margin of eye.

Teeth in narrow bands in both jaws, the outer ones somewhat enlarged, a single enlarged curved canine on each side of lower jaw. Tongue truncate in front. Gill-rakers reduced. No flaps on shoulder girdle.

Anterior nostril shortly tubular. No nuchal crest. Large pores; one medial to each pair of nostrils, 4 in a groove running from eye to upper end of gill-opening, one between preopercle and opercle. No pores on chin. Rows of minute papillae as shown in figure.

DVI+I 13, 1st spine half-length of head, 5th twice as long as 1st, produced in a filament. AI 13. P 19, upper rays not silk-like. Ventrals reaching to vent (almost to anal fin). Caudal lanceolate, half as long again as head, middle rays filamentous.

Scales cycloid, those on hinder part of body feebly ctenoid. Many of the scales lost, apparently about 55 in longitudinal series, and 16 between dorsal and ventral fins.

75 mm. Pale brown with darker mottling, somewhat vermiculate on head, blotchy on body; the body with oblique dark bands running from above downwards and forwards, the first band broad, behind pectoral, followed by 2 narrow bands, then a broad one ending below at vent, then one narrow, one broad, one narrow, the last between middle of soft dorsal and middle of anal; the narrow bands are composed of 2 dark stripes with pale interval, the broad ones of 3 dark stripes. Two dark stripes between eye and upper jaw; the dorsal with a few small black spots, anal dark grey, middle rays of the ventral and of caudal blackish.

*Locality*.—Inyack Island, Delagoa Bay, buried in mud. Professor C. J. van der Horst, Witwatersrand University, 1935.

#### Fam. CLINIDAE.

Fowler (1934, Proc. Acad. Nat. Sci. Philad., lxxxvi, pp. 505–507) records *Clinus capensis*, *superciliosus*, *cottoides*, and *anguillaris*, without localities, but he says in his introduction (p. 405) that in such cases it is to be understood that the specimens came from Durban.

I know, however, that Mr. C. L. Biden, when residing in the Cape Peninsula, collected and sent to Mr. Bell-Marley several "klip-fishes," and it seems not unlikely that the above records are based on these specimens, without definitely specified localities. The presence of these typically Cape species in Natal needs confirmation.

#### *Clinus rotundifrons* n. sp.

(Text-fig. 4.)

Body strongly compressed, of similar build to *C. fucorum*. Depth  $3\frac{1}{2}$ , length of head 4, in length of body. Depth of caudal peduncle subequal to its length. Eye slightly greater than snout, 4 in length



of head. Snout and interorbital subequal. Profile rather abruptly descending, snout blunt. Lower jaw not projecting, maxilla reaching vertical from posterior  $\frac{2}{3}$  of eye, lips thin. No barbels. No supra-orbital tentacle. Anterior nostril a short tube, with a sub-bifid tentacle on its hind margin; posterior nostril fringed with 6-7 short

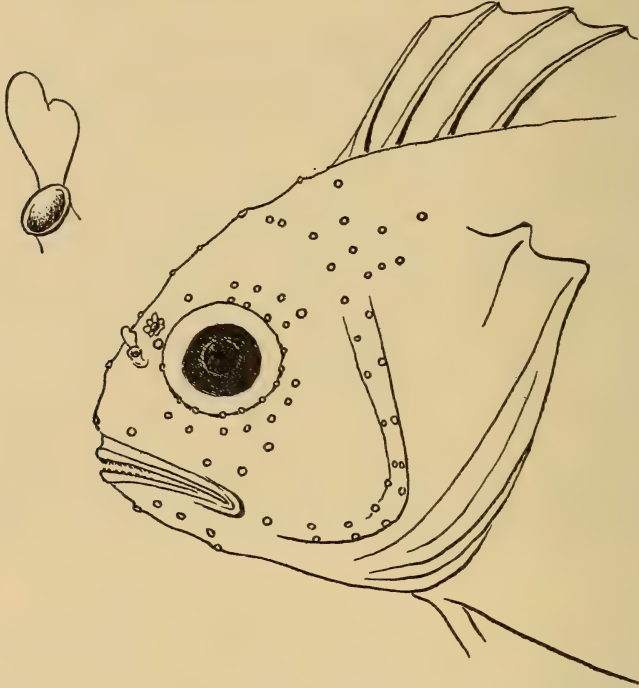


FIG. 4.—*Clinus rotundifrons* n. sp. Head, with anterior nostril further enlarged.

lobes. Numerous pores on upper and hinder parts of head, on suborbital and preopercle, and a row of 5 pores on each side of chin.

Teeth in a narrow band (3-4 rows) in upper jaw, in a double row in lower jaw, a single transverse row on vomer. Gill-rakers few and feeble, about 5 filaments in each pseudobranch. A hooked process on inner margin of shoulder-girdle.

DXXX 8, arising above preopercle, 1st spine a little over 3 times in length of head, 2nd and 3rd longer, 4th and 5th decreasing to 6th, which equals 1st, subsequent spines gradually increasing to the last, which equals 2nd; first 2 rays longer than last spine. AII 22. P 13. Third ray of ventral distinct.



Scales minute, cycloid. Lateral line a single row of tubules, about 42.

95 mm. Colour (as preserved) uniform yellowish, centre of eye black.

*Locality*.—Oudekraal (south of Camps Bay), west side of Cape Peninsula. Professor T. A. Stephenson, July 1934.

Although only a single ♀ specimen was captured, it seems distinct enough from all the other South African species to justify description. At first sight it looks very like an example of *C. fucorum* with abnormal blunt snout, but closer examination reveals a number of essential differences.

Fam. TRIGLIDAE.

Schnakenbeck (1929, pp. 27, 28) records two species of *Trigla*: *lyra* Linn. and *hirundo* Bl. from Walfish Bay.

For revision of South African species see Smith (Tr. Roy. Soc. S. Afr., xxii, pp. 321–336, December 1934).

Fowler (1934, November 6) describes *Lepidotrigla stigmatopteron* (p. 487, fig. 46), which has the breast scaleless, and seems to be synonymous with *natalensis*.

Gen. *Chelidonichthys* Kaup.

1927. Barnard, Ann. S. Afr. Mus., xxi, p. 939.

1934. Smith, *loc. cit.*, p. 328.

Although neither Dr. Smith nor myself have compared South African examples of this genus with actual European examples, we are both agreed that in South African waters there are three well-distinguished species.

Recently, however, Svetovidov (1936) has attempted to show that *capensis*, *kumu*, and *queketti* are all synonymous with the European *lucerna*; *queketti* being small, and *kumu* middle-sized, examples. He distinguishes a subspecies *kumu* from the typical *lucerna* as follows:—

No bluish-white spots on inner side of pectoral fin in adult.	Atlantic coasts of
Europe, South Africa, Mediterranean, Black Sea . . . . .	<i>lucerna</i> .
Several bluish-white spots on inner side of pectoral fin.	Pacific coasts of Japan,
Sea of Japan, Yellow Sea, coasts of Australia, New Zealand, and Tasmania	<i>lucerna kumu</i> .

To one who has examined a large number of South African specimens, and moreover has seen them landed alive on board trawlers, Svetovidov's arguments are inadequate and unconvincing. They are based, as least in part, on a misreading of my descriptions; *e.g.*

“coloration of the inner side of the pectoral fin in *T. capensis* and *queketti* is the same, at [sic=as] in *T. lucerna*.” But *capensis* has bluish-white spots on the pectoral in both young (200 mm.) and adult, and surely specimens 450–500 mm. in length can be regarded as adult.

I have seen examples of *capensis* from 100–500 mm., *kumu* 75–300 mm., and *queketti* 150–300 mm. in length. When freshly trawled there is no difficulty in distinguishing all three forms, *queketti* (all sizes) by the scaly breast (a feature ignored by Svetovidov), and the absence of spots on the pectoral, and *kumu* (all sizes) by the keeled preorbital. In the face of these facts it is a little difficult to see how growth-changes could account for the observed differences.

Sexual differences in coloration have not been observed in the South African species.

Fam. BALISTIDAE.

*Cantherines modestus* (Gnthr.).

1934. Fowler, Proc. Ac. Nat. Sci. Philad., lxxxvi, p. 510.

Fowler has the following paragraph: “Barnard distinguishes his *C. arenaceus* by the ‘Skin with distinct scales, each of which is granular or spinulose,’ and adds: ‘The character of the skin distinguishes [it] . . . from all the other South African species.’ It is thus evident that this character is also shared by *C. modestoides*.” As written, the sentence seems illogical. My key and description of *modestoides* (*loc. cit.*, 1927, pp. 957, 958) state clearly that this species has a soft velvety skin.

*Balistes conspicillum* Bloch Schn.

1865. Bleeker, Atlas Ichthyol., v, p. 116, pl. ccxxi, fig. 2 (coloured).

1929. Gudger, Bull. Amer. Mus. Nat. Hist., lviii, fig. 3 (p. 499)  
(reproduction of figure from Pike’s “Mauritius Fishes”).

1935. Smith, Rec. Albany Mus., iv, p. 232.

Dr. C. J. van der Horst, of the Witwatersrand University, collected a specimen at Delagoa Bay.

EXPLANATION OF PLATES.

PLATE VI.

*Cetorhinus maximus* (Gunner). View of centre of upper jaw and base of snout, after mounting.

PLATE VII.

*Cetorhinus maximus* (Gunner). Enlarged view of the beginnings of the dental bands, the figure on the left showing the right side of jaw, and *vice versa*.

PLATE VIII.

*Quinquarius capensis* (C. and V.). Reproduction of the frontispiece to "The Naturalist's Library," by Sir William Jardine, 1835.